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HENRY TORSEY FERNALD

ENTOMOLOGICAL NEWS

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Henry Torsey Fernald (1866–1952) [1]

The death of Doctor Henry Torsey Leroy Fernald has removed from the lists one of the few remaining members of the 'Old Guard' of entomology in America. Doctor Fernald was born on April 17, 1866, at Litchfield, Maine, the son of two outstanding entomologists. His father, Professor Charles Henry Fernald (1838–1921), was an authority on various groups of Microlepidoptera, while his mother, Maria Elizabeth (Smith) Fernald (1839–1919), was similarly known for her studies on the scale insects, particularly for her 'Catalogue of the Coccidae of the World.' His boyhood and early manhood was spent in Orono, Maine, where his father was on the staff of the Maine State College (now the University of Maine). Many of his summers were spent on Mount Desert Island, at the birthplace of his father on Fernald Point, near Southwest Harbor. The parents were active in collecting the insects of this part of Maine and it was natural that the youth should participate in these activities and gradually become interested in the science to which he later devoted his life. He received the B.S. degree from Maine in 1885, the M.S. in 1888. He then entered Johns Hopkins University, receiving the Ph.D. degree in 1890. On June 9 of this same year he was married to Miss Minna R. Simon, of Baltimore, who survives. Throughout their long wedded life of more than sixty years, Mrs. Fernald was a loyal helpmate whose kindly interest and sympathy with his work undoubtedly has proved his greatest possible inspiration. Three children were born to this union: Helen Elizabeth (Professor at the Royal

[1] The frontispiece, for which the NEWS is indebted to Miss Helen E. Fernald, shows Dr. Fernald at 83 years of age. ED.

Ontario Museum of Archaeology, Toronto, authority on Chinese art); Charles Henry(who was Professor of Business Administration at the University of Arkansas at the time of his death in 1942); and Ruth Louise (Mrs. Carl B. Stone, of Cincinnati, Ohio).

Doctor Fernald's first position was that of Professor of Zoology at the Pennsylvania State College from 1890 to 1899, where he functioned as State Entomologist, and, during the last year, as State Zoologist. In June 1899 he was called to the Massachusetts Agricultural College (now the University of Massachusetts) as Professor of Entomology in the newly established Department of Entomology. His father never held this title, having been Professor of Zoology. Doctor Fernald held his Professorship and Head of the Department for thirty-one years, retiring in 1930 because of ill health. At this time he moved permanently to Florida, first residing in Orlando, in 1938 moving to Winter Park, where he built a beautiful home at 1128 Oxford Road. Here he spent his remaining days and died on the morning of July 15, 1952, following several increasingly serious attacks of angina. He was buried in Palm Cemetery, Winter Park, beneath the palms and live oaks.

Virtually all honors possible in his chosen field came to him during his lifetime. In the American Association of Economic Entomologists, which he joined as a young man, he became president in 1914, and at the time of his decease was one of only two Honorary Members (the other being Professor Herbert Osborn who still survives). In the Entomological Society of America, he was a charter member, became a Fellow in 1914, and was chosen an Honorary Fellow in 1939. He presented the Annual Address before the 22nd meeting of the Society at Nashville, Tennessee, on December 27, 1927, speaking on the subject "Insects, the People and the State." He was a member of the Honorary Societies of Phi Beta Kappa and Phi Kappa Phi.

On January 14, 1925, the Fernald Entomological Club was founded at the University of Massachusetts and was named in honor of Doctor Fernald. Following his retirement in 1930 he prepared an account of the work of the Department, under the

general title "The History of Entomology at the Massachusetts Agricultural College 1867–1930," which was issued in mimeograph form in 1938 and serves as a basic account of the founding and early work of the Department. Since 1932 the Fernald Club has sponsored an annual publication, likewise in mimeographed form, entitled the "Fernald Club Yearbook" which continues this record of the work of the department, staff, students, and alumni.

In 1921 the McGraw-Hill Company published the first edition of his "Applied Entomology," followed by later editions in 1926 and 1935. For the fourth edition (1942) Doctor Fernald chose as co-author one of his former students, Doctor Harold H. Shepard, who is now engaged in the preparation of a revised fifth edition. This very important college text in entomology was widely accepted and thousands of copies have been sold in this country and abroad.

Doctor Fernald's fields of investigation and research included life-history studies of various insects, the burning of foliage by arsenicals, and, in the field of insect taxonomy, important studies on the Sphecid wasps, upon which group he published various papers, particularly on the species of the New World. In 1913 he went to Europe where he visited many of the leading museums and studied the various types of Sphecidae described by earlier workers. Near the close of his active career he presented his important collection of these wasps to the United States National Museum. His manuscript notes on the various types in the European museums are in the possession of Doctor V. S. L. Pate.

Doctor Fernald's breadth of knowledge in entomology and zoology and his ability to impart this to his students combined to make him one of the outstanding teachers of entomology in America. He, together with his father, belonged to a school that insisted on breadth of learning in his pupils and from his earliest days at Amherst adhered to the principle of the so-called tripartite thesis for candidates working toward the higher degrees. This included separate studies on insect morphology, taxonomy, and biology, together with additional work on the

methods of control in the case of injurious species. That such a policy was sound seems to be shown by the unusually high calibre of his students, many of whom became prominent in commercial work, in the Federal service, as State entomologists, and as teachers in colleges and universities.

Following his retirement from active duties at the relatively early age of 64, Doctor Fernald continued in correspondence with many of his former friends and students. That there was no decrease in the affection and respect for their beloved teacher and friend was strikingly shown on the occasion of his eightieth birthday, in 1946, when hundreds of letters, cards, and telegrams, expressing their love and appreciation, poured in from former students in this country and abroad.

Mrs. Alexander and I owe a vast debt of gratitude to Doctor and Mrs. Fernald. When we first arrived in Amherst in late August 1922, they insisted that we stay at their home until we could find a house and get settled. We can never forget the hospitality shown us at that time and constantly thereafter. Despite his busy and exacting life, Doctor Fernald insisted upon accompanying us in our work of house hunting, and in every possible way made our introduction to the town and to the department a most happy and auspicious one.

Doctor Fernald's life personified kindliness, patience, and understanding. His own sterling integrity and uprightness made him demand comparable characteristics in others, and he had an uncanny ability to evaluate these qualities. His manner was invariably dignified and courtly. All of these many attributes were briefly summarized at the end by a friend who called him "God's true gentleman." His profound love for his home and for his family, and his deep loyalty to his friends, were endearing qualities. We who were so fortunate as to have known him and to have been associated with him, will always remember Doctor Fernald as a great teacher, a perfect gentleman, and a true friend.

CHARLES P. ALEXANDER

Glow-worms in a Marine Littoral Habitat in Jamaica (Coleoptera; Lampyridae) *

By FRANK A. MCDERMOTT, Wilmington, Delaware

In February 1952, during a study of the *Lampyridae* of Jamaica, the larvae of an unidentified species were found crawling on wet rocks at the edge of the sea at Whitehouse Bay on the south coast. These rocks were coral limestone, much corroded and pitted, affording a very treacherous foothold; they were so situated that at high tide the sea-water splashed over them, while at ebb tide they were merely kept wet by the spray. Three species of snails were abundant on the rocks; these snails were kindly identified for me by Dr. C. Bernard Lewis, Director and Curator of the Museum of the Institute of Jamaica, as *Littorina ziczac, Nerita peloronta,* and *Tectarius tuberculatus.* One of the glow-worms was found half-way inside the shell of a snail of the latter species, presumably feeding on the snail. The glow-worms were 9 to 11 mm. long, greyish dorsally and white or yellow ventrally, of the general shape and appearance of the larvae of *Photinus,* and with the usual ventral luminous organs on the 8th abdominal segment. It was not possible to determine the species. A few adults of *Photinus commissus* E. Oliv. and of *P. synchronans* Barber were in flight in the vicinity, and the color and size of the glow-worms suggest that they may be the larvae of the former. Neither of these species is at all confined to coastal areas; both had been taken shortly before at inland localities up to 15 or 20 miles from the sea, and at altitudes up to 2,400 ft. A peculiarity of these glow-worms was the possession of four nearly parallel rows of dorsal tubercles; this suggests the similar arrangement of tubercles on *Jamphotus tuberculatus* Barber, but it seems very doubtful whether these littoral larvae are juvenile instars of that species, since a full-grown larva of *Jamphotus* had been found at Portland Gap, St. Thomas Parish, at an altitude of about 5,600 ft. on October 14, 1950.

In spite of the low range of the normal tides, 12 to 15 inches,

* This investigation was supported in part by the American Philosophical Society, Grant No. 1370, Penrose Fund.

it appears that the glow-worms are active only during the ebb tide; first seen at 9:30 P.M. on February 21st, they did not appear until an hour later successively, on the next three nights. At this tide stage the rocks are merely wet by spray, and the snails, which are firmly attached to the rocks when the water is washing over them, then crawl on the wet surface, and the glow-worms pursue them. The presence of the larvae on these particular rocks can hardly be unique, but they were not found on the same dates on similar rocks a few hundred feet east of this location, nor were they found a few nights later at Bloody Bay (west end of the Island), or subsequently at St. Ann's Bay (north coast) or Port Henderson (south coast). At least two, and usually all three of the same species of snails were present at these other locations. The rock formation on which they were found is only about 15 ft. long, and spray-wet for a width of about 10 ft. Only one glow-worm was seen on a dry rock above the reach of the spray. Close search during daylight hours failed to reveal a single glow-worm, but there was abundant opportunity for them to hide in crevices and holes in the rocks. Nor were any larvae or pupae found in any of the great many snail shells examined. Moonlight may also affect the activity of the glow-worms; the time during which they were seen was moonless, while some of the later examinations were in fairly bright moonlight, although the tide stage was favorable. As far as I know, only three persons beside myself have seen the glow-worms on the rocks.

Four specimens of the larvae, including the one found eating the snail, and also this snail, have been given to the Division of Insects of the U. S. National Museum; two larvae and specimens of the snail are in the Museum of the Institute of Jamaica.

Just what function, if any, the luminosity plays in the life of lampyrid larvae is obscure. Aquatic glow-worms, in fresh water, have been described by several authors; the glow-worms found in Jamaica are not strictly aquatic, but no similar habitat appears to have been noted previously.

Since the foregoing was written, information has been received that the glow-worms were still present on the rocks at Whitehouse Bay in early September.

Concerning Rheumatobates rileyi [1] Bergroth (Gerridae)

By H. B. HUNGERFORD [2]

To me, Rheumatobates is the most interesting genus in the Gerridae. The bizarre modifications of the antennae and legs of the males in many species are strange indeed! These little striders are exceedingly lively and nervous creatures and difficult to keep in captivity. In 1920 [3] I reported that the females are provided with an ovipositor for inserting the eggs in plant tissue and figured both the ovipositor and the fully developed ovum. I did not discover the deposited eggs either in field or laboratory. In 1923 at the University of Michigan Biological Station, I found large numbers of *Rheumatobates rileyi palosi* Blatchley on the slowly moving water of Bessey Creek but did not succeed in transporting many live specimens across Douglas Lake to the station laboratory. In 1927, J. K. Gwynn Silvey, at my suggestion, undertook a study of the life history of this species at the Biological Station and continued his studies during the summer of 1928. He published his results in 1931.[4] He described the mating behavior, reported a female ovipositing in the tissues at the base of a Potamogeton leaf and figured the eggs, five nymphal instars and adults. His plate is quite satisfactory but the legend incorrect, Figure 3 being the fifth instar not the first; figure 7 the first not the fifth, etc. No precise dates are given in this paper and nothing to indicate that any specimens were reared from egg to adult.

More work should be done on the biology of Rheumatobates. It may be helpful to know that the best way to bring these in-

[1] Michigan specimens are *R. rileyi palosi* Blatchley.

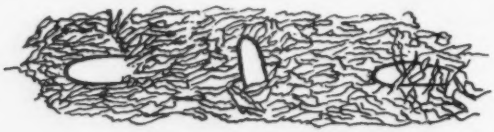
[2] Contribution from University of Michigan Biological Station and Contribution No. 817, Department of Entomology, University of Kansas.

[3] HUNGERFORD, H. B. 1920. The biology and ecology of aquatic and semiaquatic Hemiptera. University of Kansas Science Bulletin, Vol. XI, p. 120, Plate XVI.

[4] SILVEY, J. K. GWYNN. 1931. Observations on the life history of *Rheumatobates rileyi* (Bergr.). Pap. Michigan Academy of Science, Arts and Letters, Vol. XIII, pp. 433–446, Plate XL.

sects from field to laboratory is to place toweling paper in the bottom of a minnow bucket, moisten the paper and let the Rheumatobates drop from the dip net into the pail. Do not permit too much water to drip from the net into the pail and the insects will survive a considerable journey on the moist paper.

In the laboratory, instead of using aquaria containing water I have had better success with finger bowls and large seven inch stender dishes in the bottoms of which had been placed several layers of toweling paper moistened but not too wet. The female Rheumatobates insert their eggs into and often protruding through the top layer of paper. While it is extremely difficult to locate the oviposition punctures from above, by peeling off the top layer of paper and examining its under side the eggs are readily found, either plainly protruding and exposed or but thinly covered by paper fibers, as shown in the text-figure.



Pieces of paper containing eggs may be cut out and placed in small stenders for following the embryological development and hatching of these insects. This same technique has been used with success in rearing Mesovelia which also lays its eggs in the paper and with Microvelia, Hydrometra and other surface forms that simply attach their eggs to the paper. It is suggested, therefore, that losses from drowning that occur in aquaria may be avoided in studies of other semiaquatic Hemiptera and may facilitate the rearing of these insects.

Two New Millipeds Taken in California Caves

By RALPH V. CHAMBERLIN

Among millipeds taken in California and submitted to me for identification by Edward Danehy, who has been active for some years with the Stanford spelological group in the exploration of caves in that area, the two forms here described were found. Neither of these forms shows any obvious adaptive modifications to cave life unless the slightness of pigmentation in the ocelli of the *Striaria* should be open to such interpretation. The types of the new forms are in the author's collection.

Family Eurydesmidae

Genus **SIGMOCHEIR** Chamberlin

The finding of a second species referable to this genus is a matter of interest. The present form seems to be sufficiently distinct from the generotype, *S. calaveras* Chamb. in coloration and the details of the gonopods of the male, although in the latter character they are obviously close. Among related genera *Sigmocheir* agrees with *Montaphe* and *Orophe* in having no spines on the second joint of any of the legs, such a spine being present, although sometimes considerably reduced in the western genera other than these. It differs from *Montaphe* and even more strongly from *Orophe* in the smaller keels which are located higher up on the sides, with the intervening dorsum much less convex than in those genera.

Generotype: *Sigmocheir calaveras* Chamberlin

Sigmocheir dohenyi n. sp.

Head finely reticulate in black above, solid black in the area between antennae, and below this except over the labral region where yellowish. Antennae yellow. Somewhat less than anterior half of collum black, the remaining portion yellow. The immediately following tergites are black between the keels except a large sublunate median area in front of the caudal margin; the black area extends out in a narrow stripe along anterior bor-

der of the keel on each side, the remaining part of which is yellow. Farther back the entire keels are yellow and the median yellow area is enlarged, transversely oblong, to occupy most of the middle part of the metatergites, on the more posterior segments fusing with the yellow area of the keels. The prozonites are greenish white except the caudal portion which is black and a median tongue-like or triangular extension of the black area subdividing the light area, the black also extensing foward on each side between bases of keels. Lower part of tergites and the venter yellow. Basal part of anal tergite black, the cauda yellow. Legs yellow.

Antennae slender, the second to sixth articles not much differing in length, the sixth more strongly clavately widening distad than the others.

Collum much wider than the head and than the second tergite; anterior corners widely obliquely rounded off, the posterior corners narrowly rounded; median portion of anterior margin straight, the caudal margin subarcuate, moderately convex over middle portion and nearly straight at sides where oblique.

Keels inserted rather high up on the sides, horizontal, none overlapping though some may be in contact on anterior segments, well separated over most of body. Keels margined narrowly anteriorly and posteriorly, the lateral margining thicker, pores opening laterally through a moderate thickening of the margin. Keels of anterior segments subrectangular; farther back the anterior corners become more and more rounded off; on last several pairs of keels the posterior corners become produced caudad, those of the 17th and 18th most strongly so, those of the 19th reduced. Cauda narrow, nearly straight; much exceeding the valves.

Legs with none of the joints with a distal spine. Likewise no sternal spines.

Width of female holotype, 7 mm.

Locality: CALIFORNIA, Tuolumme Co., Crystal Palace Cave. One female taken in twilight zone by Hal Treacy, Dec. 17, 1951.

Family Striariidae

Striaria eldora new species

Light horn brownish or in part somewhat dusky above from adherent fine particles of dirt, the sides and venter yellow, and legs and antennae yellow.

Eyes pale, the ocelli small, compactly arranged in a triangular patch on each side, 12 or 13 in number. Antennae of moderate length, clavately thickened distad; geniculate at end of second article; the second and fourth articles longest.

Collum resembling that of *granulosa* but relatively shorter, much less than twice as long as the second tergite; the crests unusally low, almost striaform, short, incomplete anteriorly, the surface roughened between them.

The succeeding tergites with the usual twelve crests, these more elevated at their ends; surface between crests finely granular. Anal tergite with the large median lobe caudally rounded, the angle of the indentation separating off the lateral lobe on each side obtuse.

Width, about 1 mm.

Locality: CALIFORNIA, Eldorado Co., Crystal Cosumnes Cave. Three females taken in the cave in total darkness by Art Lang and Gill Lange, on Feb. 2, 1952.

Insects of Micronesia

J. LINSLEY GRESSITT has been appointed Entomologist, Bernice P. Bishop Museum, Honolulu. He is in charge of the project "Insects of Micronesia," now being taken over by Bishop Museum from the Pacific Science Board. A grant of $15,200 has been made to Bishop Museum by the National Science Foundation to help support the project for the next 18 months. One hundred specialists of a dozen countries are now collaborating on the project. J. F. GATES CLARKE, N. L. H. KRAUSS and DR. GRESSITT have been completing the field work in the Caroline Islands during 1952–53 under the Science Board's contract with the Office of Naval Research.

Concerning a New Genus, Dinocryptops, and the Nomenclatorial Status of Otocryptops and Scolopocryptops (Chilopoda: Scolopendromorpha: Cryptopidae)

By RALPH E. CRABILL, JR., Department of Entomology, Cornell University, and Ithaca College

In 1844 Newport proposed a new genus, *Scolopocryptops,*[1] to which he referred five species: *miersii* sp.n.; *melanostoma* sp.n.; ferruginea (Linne); *sexspinosa* (Say); and *longitarsis* sp.n. He designated no type. In 1895 Pocock [2] stated that the type of this genus was *miersii* Newport, and subsequent authors have accepted his decision.

When Erich Haase proposed *Otocryptops* in 1887,[3] he included a single species, *rubiginosa* (L. Koch), 1878, within it which, of course, established its type by monotypy.

But all authors have overlooked the fact the Hippolyte Lucas had already fixed the type of *Scolopocryptops* in 1849 [4] when he stated that its type was *Scolopocryptops melanostoma* Newport, 1844. Therefore, since *rubiginosa,* the type of *Otocryptops,* is congeneric with *melanostoma,* which is the type of *Scolopocryptops, Otocryptops* is a subjective synonym of *Scolopocryptops.* There is no available generic name for the species previously referred to *Scolopocryptops;* therefore, I propose the new genus *Dinocryptops,* for their reception.

In summary, those species previously referred to *Otocryptops,* i.e., *sexspinosus* (Say), *melanostomus* (Newport), *rubiginosus* (L. Koch), etc., must be accorded the generic name *Scolopocryptops,* whereas *miersii* (Newport), *broelemanni* (Kraepelin), etc. are referred to a new genus, *Dinocryptops,* the type of which is *Scolopocryptops miersii* Newport, 1844 [= *Dinocryptops miersii* (Newport)].

[1] Trans. Linn. Soc. London, XIX, p. 275 (1844).
[2] Biol. Centr. Amer., Chilop. Diplop., p. 28 (1895).
[3] Abhand. Mus. Dresden, V, p. 96 (1887).
[4] Dict. Univ. D'Hist. Nat., XI, p. 444 (1849).

A Check List of the Trichoptera (Caddis Flies) of New Hampshire

By WALLACE J. MORSE and ROBERT L. BLICKLE[1,2]

(*Continued from p. 73*)

Banksiola Martynov

calva Banks, Durham (lt), June 16–Aug. 9; **canadensis** (Banks), Durham (lt), June 28–30; **concatenata** (Walker), Claremont, Hampton, Mt. Washington, Squam Lake (LJM), July 22; **dossuaria** (Say), NH (LJM, CB), Durham (lt), June 16; **selina** Betten, Bow, Durham, Hopkinton (lt), Lee (RLB; lt), June 18–Aug. 26; **smithi** (Banks), New Durham (JGC), July 19.

Ptilostomis Kolenati

angustipennis (Hagen), Newfields (PRL), Aug. 22; **ocellifera** (Walker), Claremont, Franconia, Milford, Squam Lake (LJM), Barrington (WJM, JGC), Durham (lt), Exeter, Lee (RLB), June 3–Aug. 13; **posita** (Walker), NH (LJM), Newfields, Aug. 23; **semifasciata** (Say), Squam Lake (LJM), Durham (JGC), Lee (lt), June 5–July 30.

Phryganea Linneaus

cinerea Walker, Squam Lake (LJM), Lee (lt), July 13–15.

LIMNEPHILIDAE

Radema Hagen

incerta (Banks), Franconia (CB, LJM), Durham (CFF), May 29.

Dicosmoecus McLachlen

quadrinotatus (Banks), White Mountains, Randolph (NB, LJM), Sept. 23.

Platycentropus Ulmer

indistinctus (Walker), White Mountains (NB, LJM), July; **radiatus** (Say), White Mountains (LJM), Durham (JGC; lt), Lee (RLB, lt), Newport (lt), July 5–Aug. 24.

Glyphotaelius Stephens

hostilis Hagen, New London (HHR), Durham, Lee, Plymouth (lt), May 26–Aug. 21.

Astenophylax Ulmer

argus (Harris), Franconia (LJM), Durham, Plymouth (lt), June 13–July 3.

[1] N. H. Agr. Expr. Sta.

[2] Scientific Contribution No. 147.

Hesperophylax Banks

designatus (Walker), NH (HHR).

Ironoquia Banks

parvula (Banks), Durham (lt), Lee (RLB), June 18–Oct. 24.

Limnephilus Leach

bimaculatus Walker, Squam Lake, White Mountains (LJM), Durham, Lee (lt), June 30–July 20; **consocius** Walker, NH (CB, HHR), Durham (JGC, WJM; lt), Hopkinton, Lee, Newington (lt), Apr. 24–Aug. 15; **curtis** (Banks), White Mountains (alpine) (LJM), Aug. 10; **extractus** Walker, Claremont (LJM), May 10; **hyalinus** Hagen, Claremont (NB), Rumney (lt), July 30; **indivisus** Walker, Claremont, Hampton (LJM), Durham, Hopkinton (lt), Lee (RLB; lt), Plymouth (lt), June 24–Sept. 6; **moestus** Banks, Concord, Franconia, Mt. Kingsman, Rumney, Squam Lake (LJM), Bow, Durham, Lancaster, Lee, No. Hampton (lt), June 12–Sept. 17; **montanus** (Banks), Franconia, Mt. Washington (CB, LJM); **ornatus** Banks, Franconia (CB), Durham, Lee (lt), June 20–July 17; **ozburni** (Milne), Lee, Plymouth (lt), June 24–July 3; **parvulus** (Banks), Barrington, Durham, Lee (lt), May 10–July 6; ***plaga** Walker, NH (LJM, CB); **sericeus** (Say), Claremont, Dublin, Hampton, White Mountains (LJM), Durham, Plymouth (lt), June 29–Aug. 24; **sordidus** (Hagen), Durham, Lee (lt), July 20–Aug. 9; **submonilifer** Walker, Franconia, Milford, Mt. Washington, Squam Lake (LJM, CB), Durham (WJM; lt), Lee (RLB; lt), Plymouth (lt), May 1–Nov. 16; **vastus** Hagen, White Mountains (LJM).

Pycnopsyche Banks

antica (Walker), White Mountains (NB), Durham, Hopkinton (lt), Lee (RLB; lt), Plymouth (lt), June 24–Sept. 14; **circularis** (Provancher), NH (CB), Durham (lt), Sept. 28; **conspersa** Banks, White Mountains (NB); **gentilis** (McLachlan), Franconia, White Mountains (LJM), Durham (lt), June 10; **guttifer** (Walker), Franconia, Shelburne (LJM, CB), Durham (lt), Lee (RLB; lt), No. Hampton (lt), Twin Mountain (CFF), June 24–Oct. 5; **lepida** (Hagen), Durham (lt), Lee (RLB; lt), Aug. 2–Oct. 1; limbata (McLachlan), Hopkinton (lt), Aug. 30; **luculenta** (Betten), NH (CB); **scabripennis** (Rambur), White Mountains (LJM), July; **subfasciata** (Say), White Mountains (LJM), July 26.

* May be a synonym of *L. sericeus.*

Caborius Navas

lyratus Ross, Durham, Plymouth (lt), May 24–Oct. 5; **punctatissimus** (Walker) Hampton (LJM), Durham, Hopkinton, Lee, Newington (lt), Aug. 22–Sept. 28.

Frenesia Betten & Mosely

difficilis (Walker), Franconia, Dublin, Mt. Monadnock, Squam Lake (LJM, CB), Durham (WJM, JGC, RLB; lt), Lee (RLB), June 24–Dec. 3; **missa** (Milne), Mt. Monadnock (LJM), Durham (WJM, JGC; lt), Lee (RLB), Oct. 24–Nov. 18.

Glyphopsyche Banks

irrorata (Fabricius), NH (CB).

Psychoglypha Ross

subborealis (Banks), Lee (RLB), Nov. 14–15.

Phanocelia Banks

canadensis (Banks), Durham (lt), Oct. 19.

Drusinus Betten

sparsus (Banks), White Mountains (LJM); **uniformis** Betten, Durham, Lee (lt), June 16–July 15.

Neophylas McLachlan

aniqua Ross, White Mountains (DGD), July 2–Sept. 4; **concinnus** McLachlan, Dublin, Franconia (LJM); **fuscus** Banks, Franconia (CB, LJM); **nacatus** Denning, Jefferson (DGD), Sept. 16; **oligius** Ross, Durham, Lee (lt), Aug. 25–Oct. 24; **ornatus** Banks, White Mts. (CB, LJM); **slossonae** Banks, Franconia (NB).

MOLANNIDAE

Molanna Curtis

blenda Sibley, Lee (lt), July 5; **cinerea** Hagen, Franconia, Squam Lake (LJM), July 29; **musetta** Betten, Bow, Durham, Freedom, Lee, N. Conway (lt), Northwood (JGC), Plymouth (lt), June 9–Aug. 30; **tryphena** Betten, Durham, Lee (lt), June 25–Aug. 25; **uniophila** Vorhies, Squam Lake (LJM), Aug. 10–11.

ODONTOCERIDAE

Psilotreta Banks

frontalis Banks, Lee (lt), June 30; **indecisa** (Walker), Claremont, Franconia, Gorham (LJM), Colebrook (WJM,

RLB), June 19–July 20; **labida** Ross, Benton (HHR), Durham, Lee (JGC; lt), May 1–June 26.

CALAMOCERATIDAE

Ganonema McLachlan

americanum (Walker), NH (LJM), Lee (WJM), June 22.

LEPTOCERIDAE

Leptocerus Leach

americanus (Banks), Durham (WJM; lt), June 18–July 23.

Leptocella Banks

candida (Hagen), NH (LJM); **exquisita** (Walker), NH (LJM), Bow, Durham, Lee (lt), June 25–July 30; **pavida** (Hagen), Bow, Hopkinton, Lee (lt), Northwood (WJM), July 3–27; **uwarowii** (Kolenati), NH (LJM).

Athripsodes Billberg

alagmus Ross, Bow, Durham, Lee (lt), June 15–July 19; **angustus** (Banks), Bow, Hopkinton, Durham, Lee (lt), June 19–Aug. 8; **cancellatus** (Betten), Bow, Durham, Hopkinton, Lee, Plymouth (lt), June 30–Aug. 7; **dilutus** (Hagen), Durham, Lee (lt), June 19–Aug. 29; **flavus** (Banks), Dublin, Squam Lake (LJM), July; **mentieus** (Walker), Milford, Squam Lake (LJM), June 2; **punctatus** (Banks), Durham, Hopkinton, Lee (lt), June 20–Aug. 10; **resurgens** (Walker), Squam Lake (LJM), Bow, Durham, Hopkinton, Lee (lt), June 5–Aug. 8; **tarsi-punctatus** (Vorhies), Bow, Durham, Hopkinton, Lee, Plymouth (lt), June 24–Aug. 7; **transversus** (Hagen), Squam Lake (LJM), Bow, Lee, Plymouth (lt), June 24–Aug. 7.

Oecetis McLachlan

avara (Banks), Durham (WJM; lt), Hopkinton, Lee, Rumney (lt), June 28–Aug. 30; **cinerascens** (Hagen), Bow, Durham, Freedom, Hopkinton, Lee, Newport, Plymouth, Rumney (lt), June 9–Sept. 2; **immobilis** (Hagen) Durham, Plymouth (lt), June 27–Sept. 2; **inconspicua** (Walker), NH (LJM), Bow, Durham, Freedom, Hopkinton (lt), Lee, (RLB, WJM; lt), Lee (RLB, WJM; lt), Northwood (JGC), Plymouth, Rye (lt), June 15–Sept. 8; **osteni** Milne, Durham (HHR), Durham, Freedom, Lee, Rumney (lt), June 18–Aug. 30; **persimilis** (Banks), Durham, Hopkinton, Lee (lt), July 3–Sept. 10; **scala** Milne, Hopkinton (lt), July 18–Aug. 8.

Triaenodes McLachlan

aba Milne, Durham (HHR), Durham, Lee, Plymouth (lt), June 9–Sept. 10; **baris** Ross, Bow, Durham, Lee (lt), June 24–Aug. 21; **ignita** (Walker), Hampton (NB); **injusta** (Hagen), Durham, Lee (lt), June 20–Aug. 27; **nox** Ross, Durham, Lee, Plymouth (lt), June 9–July 30; **perna** Ross, Durham, Lee (lt), July 4–Aug. 27; **tarda** Milne, Hampton (LJM), Bow, Durham, Freedom, Lee (lt), June 18–Aug. 25.

Mystacides Berthold

longicornis (Linnaeus), Bennington, Squam Lake (LJM), Northwood (WJM), July 11–23; **sepulchralis** (Walker), NH (LJM), Durham (WJM, RLB; lt), Lee (lt), May 29–Aug. 24.

Setodes Rambur

incerta (Walker), Durham, Hopkinton (lt), July 5–Aug. 8.

GOERIDAE

Goera Curtis

calcarata Banks, Colebrook, Durham, Lee (lt), July 10; **stylata** Ross, Plymouth (lt), June 24.

LEPIDOSTOMATIDAE

Lepidostoma Rambur

americanum (Banks), Franconia (LJM, CB); **bryanti** (Banks), Lee (lt), June 22–27; **costalis** (Banks), White Mts. (LJM, HHR), Lee (lt), Aug. 10; **frosti** (Milne), Gorham, Pinkham, White Mts. (LJM, HHR), July 20–26; **griseum** (Banks), White Mts. (LJM); **latipennis** (Banks), Lee (lt), Aug. 21–30; **lydia** Ross, Mt. Washington, Warren, Woodstock (HHR), Bradford (WJM), Lee, Rye (lt), June 16–Sept. 6; **modestum** (Banks), Franconia (LJM); **ontario** Ross, Benton, Mt. Washington, Randolph, Woodstock (HHR); **prominens** (Banks), Mt. Washington (DGD), July 29–Aug. 4; **sackeni** (Banks), N. Conway (NB), Durham, Hopkinton, Lee, Plymouth (lt), Aug. 11–Sept. 19; **swannanoa** Ross, Benton, Mt. Washington, Woodstock (HHR); **togatum** (Hagen), Squam Lake, Mt. Washington (LJM), Durham, Lee (lt), June 14–Sept. 7; **vernalis** (Banks), White Mts. (DGD), July 17.

BRACHYCENTRIDAE

Micrasema McLachlan

wataga Ross, Bow, Durham, Hopkinton, Lee, Plymouth, Rumney (lt), June 11–Aug. 30.

Brachycentrus Curtis

americanus (Banks), Franconia (LJM, CB); **lateralis** (Say), Pinkham (LJM).

SERICOSTOMATIDAE

Sericostoma Berthold

distinctum (Ulmer), Squam Lake, Franconia (LJM), Durham (JGC; lt), Hopkinton (lt), Lee (RLB; lt), May 1– July 30; **griseum** (Banks), Durham (WJM, JGC; lt), Lee (RLB; lt), May 1–Aug. 1.

HELICOPSYCHIDAE

Helicopsyche Hagen

borealis (Hagen), West Milan (HHR), Durham (WJM, RLB; lt), Lee (RLB; lt), June 7–July 30.

Current Entomological Literature

Compiled by VENIA T. PHILLIPS, Librarian

Academy of Natural Sciences of Philadelphia

Under the above head it is intended to note papers received at the Academy of Natural Sciences of Philadelphia and the University of Pennsylvania pertaining to entomology, including all arthropods except Crustacea. Coverage will be world-wide as regards major contributions to systematics as well as for all papers on morphology, physiology, embryology, etc. In addition, for species from the Americas and the Pacific (Nearctic, Neotropical and Polynesian regions) all minor contributions to taxonomy, distribution, etc., will also be recorded.

This list gives references of the year 1952 unless otherwise noted. Continued papers, with few exceptions, are recorded only at their first installment.

For other records of general literature and for economic literature, see the Bibliography of Agriculture, Washington, and the Review of Applied Entomology, Series A, London. For records of papers on medical entomology see Review of Applied Entomology, Series B.

NOTE: The figures within brackets [ ] refer to the journal in which the paper appeared, as numbered in the List of periodicals and serials published in our January and June issues. The number of the volume, and in some cases, the part, heft, &c. is followed by a colon (:). References to papers containing new forms or names not so stated in titles are followed by (*); if containing keys are followed by (k); papers pertaining exclusively to Neotropical species, and not so indicated in the title, have the symbol (S).

Papers published in ENTOMOLOGICAL NEWS are not listed.

GENERAL—Beebe, W.—Introduction to the ecology of the Arima Valley, Trinidad, B. W. I. [154] 37: 157–83, ill. **Butler, J. M.**—Improved micro-dissecting instruments for helminthological and other zoological use. [Turtox News] 31: 2–3. **Foote, R. H.**—A method of making whole mounts, of mosquito larvae for special study. [80] 38: 494–5. **Gaufin, A. R. and C. M. Tarzwell.**—Aquatic invertebrates

as indicators of stream pollution. [Pub. Health Rpt.] 67: 57–64. **Gaul, A. T.**—The wonderful world of insects. Rinehart & Co., N. Y. $4.00, 290 pp., 1953. **Gross, G. F.**—Desert insects (with discussion of environmental zones within the desert). [South Austr. Nat.] 27: 21–25, ill. **Hiller, R.**—Über Mikroaufnahmen von Bernsteininklusen. [28] 2: 458–60. **Hofender, K.**—Verzeichnis der Strepsiptera und ihre Wirte (Nachtrag). [25] 2: 473–521. **Kloft, W.**—Eine Käferzucht im mikrokopischen Präparat. [Mikrokosmos] 42: 71–2, ill. **Kruseman, G.**—Consideraciones entomologicas (El Salvador). [Comunicaciones Inst. Trop. Invest. Cient.] 4: 5–10. **Kullenberg, B.**—Ophrys insectifera L. et les insectes. [107] 3: 53–70, ill., 1951. **Kuschel, G.**—Los insectos de las islas Juan Fernandez. Introduction. [Rev. Chilena Ent.] 2: 3–6. **Le Marchand, S.**—Un peu de grammaire entomologique et . . . étymologique. [119] 13: 247–8. **Maksimovic, M.**—Znacaj odnosa brojnosti zivotinjskih polulacija i teorije regulacije brojnosti u sumskoj biocenozi (Population studies). [Zastita bilja, Beograd] 12: 87–99. **Miller, R. R.**—X-ray photography as a tool in systematics. (Abstract.) [146] 1: 185. **Pronin, G. F.**—Suggestions on preventing outbreaks of bark beetles in California pine forests. [111] 28: 186–88. **Uhler, L. D.**—How to make a cyanide killing jar. [Turtox News] 31: 30. **Viette, P.**—Une technique de préparation des armures génitales. [119] 13: 249–52. **Williams, C. B.**—Some notes on killing insects for collections and for scientific research. [58] 85: 271–79. **Wood, S. F. and F. D.**—A water cooler for transporting heat sensitive animals, especially insects. [145] 51: 108–11, ill. **Zinn, D. J.**—A useful inexpensive modification of the Berlese funnel. [Turtox News] 31: 16–18, ill.

BIOGRAPHIES, OBITUARIES—Corporaal, Johannes Bastiaan, 1880–1952.—Gestorben. [28] 2: 527. (Obit.) **Gigoux, Enrique Ernesto,** 1863–1951.—(Obit.) by Gabriel Olalquiaga. [Rev. Chilena Ent.] 2: 314–5. **Meyer, Paul,** 1876–1951.—(Obit. with port. and bibl.) by O. Scheerpeltz. [Ent. Blätter] 47/48: 113–19. **Pellett, Frank C.,** 1879–1951.—(Obit.) by Floyd R. Paddock. [Proc. Iowa Acad. Sci.] 59: 52–3. **Perez, Charles,** 1873–1952.—(Obit.) by A. Caquot. [2] 235: 1566–67. **Schmidt, Heinrich J. C.,** 1863–1948.—Meinen Sammelfreunde Heinrich Schmidt zum Gedächtnis. (Obit.) by Erich Uhmann. [Ent. Blätter] 47/48: 119–20. **Storch, Otto,** 1886–1951.—(Obit. with port. and bibl.) by

W. Marinelli. [104] 3: 487–93. **Sulc, Karel,** 1872–1952.—Gestorben by Hans Sachtleben. [28] 2: 527–8. (Obit.) **Wolffhügel, Kurt Wolfgang,** 1869–1951.—(Obit.) by G. K. [Rev. Chilena Ent.) 2: 315–6.

ANATOMY, PHYSIOLOGY, MEDICAL—Barnhart, C. S. and L. E. Chadwick—A "fly factor" in attractant studies. [Science] 117: 104–5, 1953. **Dobzhansky, T.**—Experimental evolution in Drosophila. [148] 4: 545–50. **Eichler, W.**—Behandlungstechnik parasitärer insekten. Leipzig, Akad. Verlagsgesell. Geest & Portig, 1952. 286 pp., 82 text figs. 19.60 DM. (Reviewed in [28] 2: 524–5.) **Faust, R.**—Untersuchungen zum Halterenproblem. [159] 63: 325–66. **Ferris, G. F.**—On the comparative morphology of the Annulata. A summing up. [90] 18: 2–15, 1953. **Fröbich, G. und K. Offhaus**—Ein neuer Nahrungsfaktor, der die Metamorphose von Tribolius confusum Duv. (Tenebr., Col.) ermöglicht. [100] 39: 575. **Gibson, C. L. and W. F. Ascoli.**—The relation of Culicoides (Diptera: Heleidae) to the transmission of Onchocerca volvatus. [80] 38: 315–20. **Martini, E.**—Lehrbuch der medizinischen entomologie, 4. auflagé. Mit beiträgen von F. Peus und W. Reichmuth. Jena, G. Fischer, 694 pp., 318 text figs. 38 DM. 1952. (Review in [28] 2: 523–4.) **Spiess, E. B., B. A. Terrile and U. Blumenheim.**—Physiological properties of gene arrangement carriers in Drosophila persimilis. II. Wing-beat frequency and wing dimensions. [62] 6: 421–27. **Townsend, J. I., Jr.**—Genetics of marginal populations of Drosophila willistoni. [62] 6: 428–42. **Virkki, N.**—Zur Zytologie einiger Scarabaeiden: Studien an der Spermatogenese. [Suom. Eläin-ja Kasvit. Seura Vanamo, Julk.] 14, no. 3, 104 pp., ill., 1951. **Vité, J. P.**—Temperaturversuche an Ips typographus L. (Coleoptera.) [159] 149: 195–206, ill. **Wahab, A. A.**—Some notes on the segmentation of the scorpion, Buthus quinquestriatus (H.E.). [Egypt. Acad. Sci., Proc.] 7: 75–91, ill., 1951.

ARACHNIDA AND MYRIOPODA—Bolwig, N.—Observations on the behaviour and mode of orientation of hunting Solifugae. [55] 15: 239–40. **Freeman, R. S.**—The biology and life history of Monoecestus Beddard, 1914 (Cestoda: Anoplocephalidae) from the porcupine. (Acarina.) [80] 38: 111–29, ill. **Goodnight, C. J.**—Speciation among the opiliones (Arachnida). (Abstract.) [146] 1: 183. **Grandjean, F.**—Observations sur les oribates (24 ser.). (Includes preparation techniques.) [Paris. Mus.

Nat. d'Hist. Nat. Bulletin, 2d ser.] 24: 187–94. **Henry, L. M.**—The nervous system of the Pycnogonida. [90] 18: 16–36, ill., 1953. **Keegan, H. L. and R. A. Hedeen.**—Collections of ectoparasitic mites from Alaska. [80] 38: 360–61. **Liro, J. I. and H. Roivainen.**—Äkämäpunkit, Eriophyidae. [Suom. Eläin-ja Kasvit. Seura Vanamo. Suomen Eläimet] no. 6, 281 pp., ill., 1951. **Menzies, G. C. and R. W. Strandtmann.**—A new species of mite taken from nest of armadillo (Acarina Laelaptidae, Hypoaspinae). [56] 54: 265–73, ill. **Nørgaard, E.**—On the ecology of two lycosid spiders (Pirata piraticus and Lycosa pullata) from a Danish sphagnum bog. [107] 3: 1–21, ill., 1951. **Palmen, E.**—Survey of the Diplopoda of Newfoundland. [Suom. Eläin-ja Kasvit. Seura Vanamo, Julk.] 15, no. 1, 31 pp., ill. **Pauly, F.**—Die "Copula" der Oribatiden (Moosmilben). [100] 39: 572–73, ill. **Radford, C. D.**—A revision of the fur mites Myobiidae (Acarina) (suite). [Paris. Mus. Nat. d'Hist. Nat., Bull. 2d ser.] 24: 371–81, ill. (*). **Roth, V. D.**—Notes and a new species in Cybaeina (Arachnida: Agelenidae). [111] 28: 195–201, ill. **Strandtmann, R. W.**—Host-parasite relationships in avian nasal mites. (Abstract.) [146] 1: 184–5. **Toumanoff, C. and C. Vago.**—L'effet de l'alcalinité du milieu de culture sur la virulence de Bacillus cereus var. alesti Toum. et Vago, pour les vers à soie. [2] 235: 1715–17. **Trägardh, I.**—Acarina, collected by the Mangarevan expedition to southeastern Polynesia in 1934 by the Bernice P. Bishop Museum, Honolulu, Hawaii. Mesostigmata. [25] 4: 45–90, ill. (*). **Vachon, M.**—Remarques préliminaires sur quelques insectes parasites (Diptères et Hyménoptères) des cocons et oeufs d'araignées. [Paris. Mus. Nat. d'Hist. Nat., Bull. 2d ser.] 24: 200–3. **Wehr, E. E.**—Dermoglyphus elongatus (Mégnin, 1877), a quill mite of the house canary in the U. S. (Acarina.) [80] 38: 548–9. **Young, M. D. and R. W. Burgess.**—Susceptibility of Anopheles quadrimaculatus to Korean vivax malaria. [Pub. Health Rpt.] 67: 14–16.

SMALLER ORDERS—Edmunds, G. F.—Convergent evolution among the nymphs of mayflies (Ephemeroptera). (Abstract.) [146] 1: 183. **Emerson, A. E.**—The neotropical genera Procornitermes and Cornitermes (Isoptera, Termitidae). [14] 99: 479–539, ill. (*). **Gaufin and Tarzwell.**—(See General.) **Hofender, K.**—(See General.) **Hood, J. D.**—Mecynothrips snodgrassi, a new thrips from the Solomon Islands (Thysanoptera). [56] 54: 294–301, ill.

Hughes, G. M.—"Giant" fibres in dragonfly nymphs (Anisoptera). [98] 171: 87–8, ill., 1953. **Illies, J.**—Die europäischen Arten der Plecopteraengattung Isoperla Banks (= Chloroperla Pictet). [28] 2: 369–424, ill. **Kalshoven, L. G. E.**—Observations on the attractiveness of certain materials for termites. [57] 14 (no. 330): 188–90. **Mayo, V. K.**—New western Ephemeroptera, IV, with notes. [111] 28: 179–86, ill. **Schmid, F.**—Trichoptera (Islas Juan Fernandez). [Rev. Chilena Ent.] 2: 29–34, ill. (*). **Smit, F. G. A. M.**—Monstrosities in Siphonaptera III. Castration in a male Ceratophyllus gallinae (Schrank). [57] 14 (no. 330): 182–87, ill. **Snyder, T. E.**—Know your termites and local incidence of infestation. [Pest Control] 21: 27–8, 1953. A new Rugitermes from Guatemala (Isoptera, Kalotermitidae). [56] 54: 303–05. **Stark, H. E.**—The possible occurrence of random fixation in a population of fleas. (Abstract.) [146] 1: 183. **Traub, R. and P. T. Johnson.**—Four new species of fleas from Mexico (Siphonaptera). [13] no. 1598: 1–28, ill. **Valle, K. J.**—Sudenkorennot, Odonata. [Suom. eläin-ja Kasvit. Seura Vanamo. Suomen Eläimet] no. 7, 159 pp., ill. (k). **Woodland, J. T.**—The styli of the firebrat, Thermobia domestica (Packard). (Thysanura.) [Proc. Penn. Acad. Sci.] 26: 27–32, ill. **Wygodzinsky, P.**—Thysanura from Juan Fernández Island. [Rev. Chilena Ent.] 1: 199–204 (*), 1951. **Yates, J.**—Halothrips niger Osb., the red clover thrips (includes discussion of diapause). [N. Z. J. of Sci. & Tech. Sect. B] 34: 166–72, ill.

ORTHOPTERA—Albrecht, F. O.—The reliability of the E/F ratio, a measure of phase status, in fresh and in dried locusts. [127] 21: 167–69. **Beebe, W. J. Crane and S. Hughes-Schrader.**—An annotated list of the mantids of Trinidad, B. W. I. [154] 37: 245–58, ill. **Chapman, K.**—Ecological studies on solitary Acrididae in England and South Africa. [55] 15: 165–203, ill. **Crane, J.**—A comparative study of innate defensive behavior in Trinidad mantids. [154] 37: 259–93, ill. **Joly, P.**—Production d'adultoïdes chez Locusta migratoria L. [2] 235: 1555–57. **Manil, A.**—A mantis in captivity. [Jour. Bengal Nat. Hist. Soc.] 25: 184–88, ill. **Pichler, F.**—Über den Bau und Bewegungsmechanismus der Cerci bei Calliptamus italicus L. [104] 3: 534–45, ill.

HEMIPTERA—Carvalho, J. C. M.—Miridae (Neotropical Miridae, 54) (Islas Juan Fernandez). [Rev. Chilena Ent.] 2: 21–28, ill. (*). **Cumber, R. A.**—Studies on Oliarus

atkinsoni Myers (Cixiidae) vector of the "Yellow-leaf" disease of Phormium tenax Forst. II. Nymphal instars and seasonal changes in the composition of nymphal populations. [N. Z. J. of Sci. & Tech. Sect. B] 34: 160–65, ill. **Drake, C. J.**—A new tropical hybrid. [111] 28: 194. **Dušková, F.**—Vergleich der morphologischen Hauptmerkmale der Schildläuse Quadraspidiotus piri (Lichtenstein) und Q. mařani Sahradnik. (Coccoidea: Diaspididae). [28] 2: 452–5, ill. **Essig, E. O.**—A new genus and species of Aphidae on Scotch broom in Oregon. [111] 28: 215–19, ill. **Hottes, F. C.**—Miscellaneous notes on the taxonomy of some aphid species. [111] 28: 191–93. **Kontkanen, P.**—Quantitative and seasonal studies on the leafhopper fauna of the field stratum on open areas in north Karelia. [Suom. Eläin-ja Kasvit. Seura Vanamo, Julkaisuja (Ann. zool. Soc. Zool. Bot. Fennica Vanamo)] 13: no. 8, 91 pp., ill., 1950. **Kormilev, N. A.**—Los insectos de la islas Juan Fernandez. Lygaeidae. [Rev. Chilena Ent.] 2: 7–15, ill. (*). **Linnavuori, R.**—Studies on the ecology and phenology of the leafhoppers (Homoptera) of Raisio (s.w. Finland). [Suom. Eläin-ja Kasvit. Seura Vanamo, Julkais.] 14: no. 6, 32 pp. **Ruckes, H.**—Some scutelleroid Hemiptera of the Bahama Islands, British West Indies. [13] 1591: 1–9. **Sailer, R. I.**—The identity of Stenocephalus mexicanus Ashmead (Coreidae). [56] 54: 301–03. **Slater, J. A.**—An annotated list of the Lygaeidae of Iowa and Illinois. [Proc. Iowa Acad. Sci.] 59: 521–40. **Wagner, E. and J. A. Slater.**—Concerning some holarctic Miridae. [56] 54: 273–81, ill. (*). **Wygodzinsky, P.**—Contribución al conocimiento del género Metapterus Costa, 1860, de las Américas y de Juan Fernández (Reduv.). [Rev. Chilena Ent.] 1: 113–28 (k*), 1951. Reduviidae y Cimicidae Islas Juan Fernandez). [Rev. Chilena Ent.] 2: 15–19, ill. (*).

LEPIDOPTERA—Beebe, W.—A contribution to the life history of Colobura (Gynaecia auct.) dirce dirce (Linn.) (Butterfly). [154) 37: 199–202, ill. **Constantin, C. and C. Vago.**—(See Anatomy.) **Fleming, H.**—The Saturnioidea (Moths) of Rancho Grande, North-central Venezuela. [154] 37: 203–7. **Forster, W.**—Gespinstmotten (Hyponomeuta). [Kosmos] 49: 19–20, ill., 1953. **Fox, R. M.**—The taxonomic value of male genitalia in the Ithomiidae. (Abstract.) [146] 1: 185. **Franz, E.**—Sphingidae de El Salvador (Resultados del viaje de exploracion Dr. Adolf Zilch 1951 en El Salvador, no. 2). [Comunicaciones Inst. Trop.

Invest. Cient.] 4: 14–17. **Herrera, J.**—Ausencia de dimorfismo sexual en Colias flaveola Blanchard 1852 (Pieridae). [Rev. Chilena Ent.] 2: 173–77, ill. **Klots, A. B. and H. K. Clench.**—A new species of Strymon Huebner from Georgia. (Lycaenidae.) [13] no. 1600: 1–19, ill. **McDunnough, J. H.**—New species and subspecies in the genus Hydriomena, with notes (Geometridae). [13] 1592: 1–17, ill. **Marion, H.**—Ebouche d'une classification nouvelle des Pyraustidae. [119] 13: 260–70. **Sperry, J. L.**—Notes on the genus Glena Hulst and descriptions of new species (Geometridae). [145] 51: 71–78, ill.

DIPTERA—Aczél, M. L.—El genero Euaresta Loew (= Camaromyia Hendel) en la region neotropical (Trypetidae). [Rev. Chilena Ent.] 2: 147–72, ill. (*k). **Alexander, C. P.**—New or little-known Tipulidae from the Andes Mountains. [Rev. Chilena Ent.] 1: 5–14, 1951. Tipulidae (Islas Juan Fernandez). [Rev. Chilena Ent.] 2: 35–80, ill. (*). **Berg, C. O.**—Biology and metamorphosis of some Solomon Islands Diptera. Part II. Solva bergi James (Erinnidae), with a comparison of related species. [111] 28: 203–15, ill. **Biguet, J. and J.-M. Doby.**—Variations de la soie dorsale prothoracique submédiane interne chez la larve d'Anopheles (Myzomyia) multicolor. [17] 27: 539–40. **Cortés, R.**—Nuevos géneros de Tachininae chilenos con cerdas facio-orbitales (Tach.). [Rev. Chilena Ent.] 1: 249–62, 1951. Tachinidae (Islas Juan Fernandez). [Rev. Chilena Ent.] 2: 109–11 (*). **Dobzhansky, T.**—(See Anatomy.) **Dodge, H. R.**—Generic and supergeneric concepts in the dipterous family Sarcophagidae. (Abstracts.) [146] 1: 183–4. **Donoso, R.**—Consideraciones sobre Sarconesia chlorogaster minor Enderlein, y su validez sistematica (Calliphoridae). [Rev. Chilena Ent.] 2: 185–6. **Etcheverry, M.**—Syrphidae de la provincia de Tarapaca. [Rev. Chilena Ent.] 2: 307–310. **Faust, R.**—(See Anatomy.) **Fluke, C. L.**—The Metasyrphus species of North America (Syrphidae). [13] 1590: 1–27, ill. (*k). **Foote, R. H.**—(See General.) **Gibson, C. L. and W. F. Ascoli.**—(See Anatomy.) **Harmston, F. C.**—New species of Dolichopodidae in the U. S. National Museum. [56] 54: 281–94. **Moore, J. A.**—Competition between Drosophila melanogaster and D. simulans. I. Population cage experiments. [62] 6: 407–20, ill. **Rayment, T.**—A wanderer in wax (Syrphidae). [Roy. Zool. Soc. N.S.W., Proc.] 1951/52: 31–35, ill. **Remmert, H.**—Eine sexuelle Zwischenform bei

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COLEOPTERA—Andreae, H.—Die Gattung Monoplius Mars. (Histeridae.) [Annals Transvaal Mus.] 22: 41–45 (k). **Bechyné, J.**—Alticidae (Chrysomelidae). [Rev. Chilena Ent.] 2: 117–8 (*). Chrysomeloidea Américains nouveaux ou peu connus. [Rev. Chilena Ent.] 1: 75–112 (k), 1951. **Bertrand, H.**—Tableau des larves aquatiques de coléoptères. [59] 8: 95–110 (k). **Bosq, J. M.**—Novedades en Cerambícidos chilenos. [Rev. Chilena Ent.] 1: 191–97, 1951. **Bruce, N.**—Revision der im Deutschen Entomologischen Institut befindlichen Hapalips-arten (Cryptophagidae). [28] 2: 461–73 (*kS). **Cazier, M. A. and L. Lacey.**—The Cerambycidae of the Bahama Islands, British West Indies. [13] 1588: 1–55, ill. (*k). **Emden, F. I. van.**—Description of the larva of Aegorrhinus phaleratus (Curcul.). [Rev. Chilena Ent.] 1: 245–48, ill., 1951. **Fiedler, C.**—Neue Vertreter des Genus Eubulus aus Süd-Amerika (Curculionidae). [Rev. Chilena Ent.] 2: 139–45 (*k). **Franciscolo, M.**—On the systematic position of the genus Ctenidia Castelnau, 1840. (Contr. 34 to the knowledge of the Mordellidae.) [127] 21: 155–63, ill. (k). **Given, B. B. and J. M. Hoy.**—A revision of the Melolonthinae of New Zealand (includes larvae). [Bull. N. Z. Dept. Sci. & Ind Res.] no. 102, 171 pp., ill. (*). **Gould, D. J. and R. S. Beal, Jr.**—New records of Leptinus testaceus from North America. (Leptinidae). [111] 28: 193. **Guérin, J.**—Essay monographique des erotyliens Chiliens. [Rev. Chilena Ent.] 2: 179–83, ill. (*). **Guignot, F.**—Dytiscidae (Islas Juan

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